

REMARKS

This Amendment is fully responsive to the non-final Office Action mailed September 17, 2009. It is respectfully submitted that the claims contain limitations that patentably define over the references cited by the Examiner, for the reasons discussed in these remarks. Therefore, reconsideration and allowance of the pending claims is appropriate and respectfully requested.

Interview Summary

The applicants very much thank the Examiner for the courtesy of holding a telephone Interview with the applicants' representative concerning this application on December 9 and 15, 2009. Those discussions concerned the pending rejection of independent claims 1 and 9 as being anticipated under 35 U.S.C. § 102(b) by US 2003/0146913 to Shen et al. (hereafter "Shen"). While no formal agreements were reached during the Interview, the applicant's representative believes the discussions led to a deeper understanding of the respective positions concerning the disclosure of Shen and the scope of the pending claims.

Claims 1 and 9

It is requested that the rejections of claims 1 and 9 as being anticipated by Shen be reconsidered and withdrawn because Shen does not disclose selecting object constituents to be registered independently from the first image and the second image, as recited in both claim 1 and claim 9.

As discussed during the Interview, the supporting specification in the present application for this claim limitation may be found for example at page 2, lines 16 to 26 (emphasis added):

The registration of only those image areas of the two images which are associated with selected corresponding object constituents, the selected object components having to be relevant to the task in hand. As a rule, the user of the data processing unit determines in advance which object constituents are "relevant" in a given situation. In the trend control of lung tumors, for instance, the lungs are the relevant object constituents.

The data processing unit described above offers the advantage that it allows a fully automatic registration of the images, the segmentation and the subsequent restriction of the registration to relevant image areas allowing, in the context of the given task, both a very precise and a fast execution. Individual user actions are not always necessary. The user

merely decides (for instance by selecting an application-specific program mode) which object constituents are relevant to the task in hand and therefore to be registered.

Thus, as described in the specification, a user selects the object constituents to be registered (for example, a patient's lungs) in advance of or in other words before any imaging data is considered. This advance selection of the object constituents to be registered is therefore made by the user without consideration of, or in other words independently of, any of the imaging data. Shen does not disclose selecting object constituents to be registered independently of imaging data.

Shen instead describes a two step method for registering two lung images. In the first step (see Shen ¶¶ 0024 to 0029, and Figure 2), a calibration procedure is used to perform a "rough alignment" representing a linear transformation between the two lung images. "The alignment parameters are rough estimations of the transformations between the two image sets" See Shen, ¶ 0029. Thus the result of this first step is a rough pre-registration of the two image sets. As discussed during the Interview, this first step is not a true "registration" as that term is described and defined in the application at page 1, lines 7-20. The Examiner seems to agree with that, in stating: "The rough alignment [of Shen] plays no role on the registration" See Office Action, at page 3. Thus, the method of Shen requires a second step for registration, and it is that second step which is relied upon by the Examiner as disclosing a selection of object constituents to be registered independently from the first image and the second image. See id.

However, the second step of Shen (see Shen ¶¶ 0030 to 0041, and Figure 3) does not include selection of object constituents to be registered independently from the first image and the second image. Rather, it requires that the user interactively indicates a relevant reference point on a first image, such as a nodule in the lung, to be registered in the second image. See Shen, ¶ 0030. The selection of constituents to be registered in the second step of Shen therefore is dependent upon the first image — the selection requires user involvement with the first image — and the selection therefore is not "independent from" the first image as recited in claims 1 and 9.

For at least these reasons, Shen does not disclose a selection of object constituents to be registered independently from the first image and the second image, as recited in both claim 1 and

claim 9. Therefore, Shen does not disclose each and every limitation of these claims, and the rejection of these claims as being anticipated by Shen should be reconsidered and withdrawn.

Claims 2-8 and 10-17

Claims 2-8 and 10-17 each ultimately depend from parent independent claim 1 or parent independent claim 9. The Office Action rejected each of these dependent claims under 35 U.S.C. § 103(a) as being unpatentable over Shen (discussed above in connection with claims 1 and 9) in view of one other companion reference. In each rejection, Shen was relied upon as teaching the limitations of claim 1 and 9, and the companion reference was cited as teaching the limitations of one or more dependent claim. For at least the reasons identified above, however, Shen does not anticipate claim 1 or claim 9. On that same basis, it is respectfully submitted that the corresponding obviousness rejections of the dependent claims should be reconsidered and withdrawn.

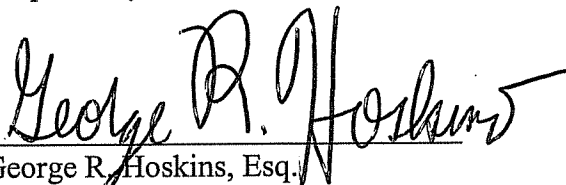
New Claims 18-19

New claims 18-19 have been added herein. During the Interview, the Examiner expressed reservations about the claim language “independently from.” In the Remarks above the applicants have described what is meant by that limitation, and how it finds support in the specification as filed. New independent claim 18 and its dependent claim 19 have been added for additional consideration by the Examiner, which avoid the use of “independent from.” It is respectfully submitted that they are allowable over the art of record.

Conclusion

This Amendment is fully responsive to the non-final Office Action mailed September 17, 2009. It is respectfully submitted that the claims contain limitations that patentably define over the references cited by the Examiner, for the reasons provided in the remarks above. Therefore, reconsideration and allowance of the pending claims is appropriate and respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, reading "George R. Hoskins". The signature is written in a cursive style with a large, stylized "H" and a long horizontal stroke at the end.

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